To: Kevin.Strohmeier@ky.gov[Kevin.Strohmeier@ky.gov]
From: Smith, Art
Sent: Mon 1/27/2014 3:53:25 PM
Subject: FW: DRAFT - Status of Lab Efforts
chemical summary.docx

Thanks for the preliminary KDEP data.

I am forwarding this for your information. Mainly, it summarizes the work performed by the Region 3 EPA lab on the MCHM/PPH mixture. This may be of benefit to your lab, so pass it on if they want this type of information.

There is also a "lab workgroup" formed to go over the experiences of the different parties performing analyses in the aftermath of the Charleston spill. If your lab people have an interest in those proceedings, they should contact Cindy Caporale with the EPA Region 3 lab in Ft. Meade MD; her contact info is provided below.

From: Kelly, Jack (R3 Phila.)
Sent: Sunday, January 26, 2014 6:31 PM
To: Burns, Francis; Werner, Lora; Markiewicz, Karl; Helverson, Robert; Arguto, William; Gilbert, John; Smith, Art; Jarvela, Steve
Subject: Fw: DRAFT - Status of Lab Efforts

All. Just fyi.....

From: Caporale, Cynthia
Sent: Sunday, January 26, 2014 5:51:13 PM
To: Kelly, Jack (R3 Phila.)
Cc: Wisniewski, Patti-Kay; Gundersen, Jennifer; Graybill, Eric; Slayton, Joe; Wilkie, walter; Pomponio, John; Foreman, Fred
Subject: DRAFT - Status of Lab Efforts

Here is a status of lab efforts since Friday. We still have some work to do to check out the sample sent on Friday.

On Friday, January 24th we received one sample that represents crude MCHM/PPh material (Crude Mix).

Standards have been obtained for MCHM and PPh (when these acronyms are used below reference is to the single compound standard material).

We also obtained crude MCHM (pure product) from Eastman.

- MCHM and PPh are both being detected using GC/MS and MCHM can be seen in the 0.5 ppb range

- MCHM is seen as cis and trans when separated by GC; consistent with other labs.

- Crude Mix was run on HPLC/UV and several UV peaks were observed; several larger peaks elute later that are not being identified as PPh or MCHM (too early to tell but these could be other compounds that are not being detected using GC/MS or are other constituents in this particular mix). PPh was confirmed on HPLC with standard and appears to be lower in concentration than these larger peaks. HPLC/UV is all qualitative at this point.

- Crude Mix was run on GC/MS and MCHM and PPh were confirmed; several other peaks are present and are being investigated to determine if any are compounds other than those listed on the MSDS for these two materials.

- MCHM standard was run on GC/MS using Purge & Trap (VOA method 524) and was detected at 3ppm level. Conversations with other labs who have been successful at detecting MCHM at lower levels (ppb range) are ongoing to determine optimum instrument operations.

Next Steps:

- Since other peaks are being detected we will focus on characterizing what other constituents might be present in the Crude Mix.

o HPLC/UV will be explored more to assist in characterizing the Crude Mix; possibly use LC/MS/MS

o GC/FTIR will be explored to assist in determining presence of other constituents other than Crude MCHM or Crude PPH.

o GC/MS will be used to characterize other peaks present in the Crude Mix.

- Significant progress for obtaining lower levels of detection for both MCHM and PPH has

been made by other labs (MATRIC and REIC) so we will focus on confirming those levels (some of which can be done concurrently with characterization process).

o GC/MS with Purge & Trap – will modify operating conditions to verify detection limits being obtained by other laboratories; will verify that PPH is detected with this technique.

Suggestions:

- More work is needed to fully characterize the Crude Mix

o After more investigation tomorrow we should have a preliminary characterization of the peaks we are seeing in HPLC and GC/MS

o Depending on what we find out tomorrow having NEIC use other techniques might be worthwhile to fully characterize?

o Requesting raw chromatogram/spectra or TIC data from MATRIC or REIC would be helpful to determine if other constituents are present (TIC analysis) (I will ask on Monday)

- From the consultations we are having with other laboratories lower detection limits can be obtained for both MCHM and PPH.

o Since two labs (MATRIC and REIC) are using two different sample preparation techniques, suggest another lab duplicate one or both of those techniques to verify the method detection limits and confirm no false negatives (mini multi-lab validation study)

o If EPA could collect a finished DW sample then we could assist with determining current levels and/or any possible disinfection byproducts.

Attached is a list of the chemicals identified in the various MSDS sheets and identifying which ones we have ordered standards.

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